SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F21-R-45

Name: Tennyson Dam **County**: Pennington

Legal description: Sec. 8, T 17E, R 1S
Location from nearest town: 2 miles east and ¼ miles S of Quinn, SD
Dates of present survey: June 29, 2012
Date last surveyed: June 12-14, 2000, July 12, 2000, and October 10, 2000
Management classification: Warmwater semipermanent

Primary Species: (game and forage)	Secondary and other species:
1. Largemouth Bass	1. Northern Pike
2. Bluegill	2. Yellow Perch
3. Black Bullhead	3.
4.	4.

PHYSICAL CHARACTERISTICS

Surface Area: 56.3 acres **Watershed:** 6480 acres
Maximum depth: 12 feet **Mean depth:** 5.8 feet
Lake elevation at survey (from known benchmark): Two feet below full-pool

Describe ownership of lake and adjacent lakeshore property:

Tennyson Dam was constructed in 1939 as a WPA project. The dam is privately owned with a perpetual easement for public use. This easement grants public access to 12 feet above the high water contour. There have been some conflicts with trespassing on the north end of the lake, at the inlet. There are no provisions for access to that point from a section line or public road. Access at the south end of the lake is not a problem.

Fishing Access:

Tennyson Dam is a shallow lake with a small watershed and water levels are highly variable. Some of the shoreline has cattails which limit shore fishing access, but there are many areas without cattails as well. There is also a substantial amount of submergent vegetation near the shoreline through the summer. A small boat or canoe could be launched in Tennyson for better access.

Observations of Water Quality and Aquatic Vegetation:

Cattails surround much of the shoreline and submergent vegetation is abundant near the shore. The pasture on the south border of Tennyson is heavily grazed and the shoreline is eroded in areas due to cattle watering.

Observations on conditions of structures (i.e. spillway, boat ramps and docks, roads, etc.):

There are no boat ramps or water level regulatory structures. The spillway was not observed during this survey.

MANAGEMENT OBJECTIVES

Objective 1. Maintain a Largemouth Bass PSD between 40 and 70 and PSD-P greater than 10

Objective 2. Maintain a Bluegill PSD of at least 20

Objective 3. Reduce abundance of Black Bullhead

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BIOLOGICAL DATA

Sampling Effort and Catch

Tennyson Dam was surveyed on June 29-30, 2012. Sampling effort consisted of four modified fyke (frame) nets consisting of a 1.3 X 1.5 m frame, 19.1 mm (0.75 in) mesh and a 1.2 X 23 m (3.9 X 75.5 ft) lead (Figure 1) and one experimental gill net (45.7 m [150 ft] long and 1.8 m [6 ft] deep with six 7.6 m [25 ft] panels of bar mesh sizes: 12.7 mm [0.5 in], 19.1 mm [0.75 in], mm [1.25 in], 38.1 mm [1.5 in], and 50.8 mm [2.0 in]), three quarter arc seine hauls, and two angler hours (Figure 1).

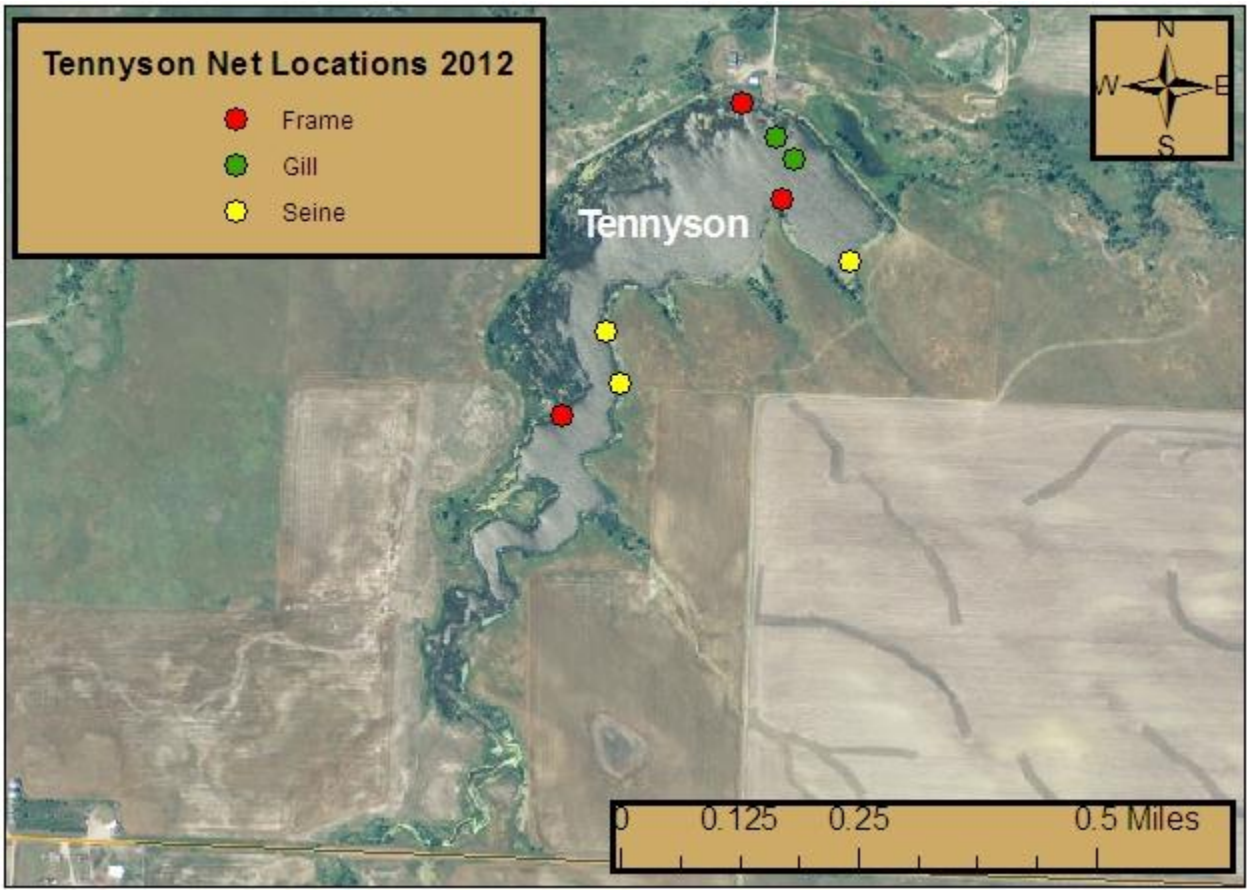

Figure 1. Tennyson Dam fisheries survey net locations 2012.

Table 1. Gear type (Gear), species, number captured (N), catch-per-unit-effort (CPUE and CPUE-S), proportional stock densities (PSD and PSD-P), and relative weights of fish greater than or equal to stock length (*Wr* ≥ S**)** during the fisheries survey in Tennyson Dam, Pennington County, South Dakota, June 29-30, 2012**.** CPUE's with 80% confidence intervals in parentheses. PSD and *Wr*≥ S with 95% confidence intervals in parentheses.

Gear	Species	N	CPUE	CPUE-S	PSD	PSD-P	*Wr* ≥ S
Frame Net	BLB	505	126.3	126.3 (56)	80 (3)	0	91.2 (1.5)
Frame Net	BLG	310	77.5	77.5 (26.6)	24 (4)	3 (1)	93.3 (1.7)
Frame Net	YEP	9	2.3	2.3 (1.8)	44 (41)	0	75.9 (2.2)
Frame Net	LMB	1	0.3	0.3 (0.4)	100	0	104.6 (--)
Gill Net	BLB	32	32 (--)	32 (--)	78 (15)	0	98.4 (0.9)
Gill Net	BLG	23	23 (--)	23 (--)	0	0	98.2 (4.1)
Gill Net	NOP	1	1 (--)	1 (--)	100	0	93.5 (--)
Gill Net	YEP	1	1 (--)	1 (--)	0	0	69.7 (--)
Gill Net	LMB	8	8 (--)	7 (--)	57 (43)	0	111.3 (8.8)

Black Bullhead

Black Bullheads were the most numerous species surveyed among all the gear types. There appears to be a large year class of black bullheads with the majority of the individuals over quality length (Figure 2). The Black Bullheads were in good condition with a mean relative weight of stock length and greater fish (*Wr* ≥ S) of 91.2 in the frame nets and 98.4 in the experimental gill net (Table 1). Frame net mean CPUE was 126.3 for fish greater than or equal to stock length. Experimental gill net mean CPUE was 32 for stock length or greater fish. There were no Black Bullheads surveyed that were preferred length in the experimental gill or frame nets.

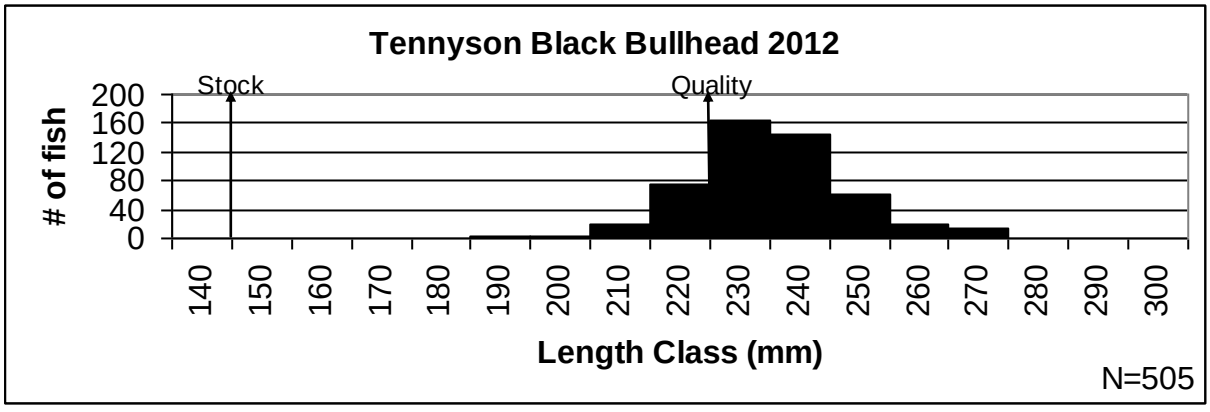

Figure 2. Length frequency histogram of Black Bullheads surveyed during the modified fyke (frame) net survey in Tennyson Dam, Pennington County, South Dakota, 2012

Bluegill

Bluegill were the second most abundant fish species collected during the survey (Table 1). . Sampled Bluegill were in good condition with mean *Wr* ≥ S of 93.3 and 98.2 for frame and experimental gill nets, respectively (Table 1). Mean Bluegill CPUE and CPUE-S was 77.5 and 23 for frame and experimental gill nets, respectively (Table 1). A total of 25 age-0 and age-1 Bluegill were collected during the three seine haul, indicating natural reproduction and multiple year classes.

The length frequency histogram indicates a year class of fish approaching quality length with some fish already exceeding quality length (Figure 3). It appears that there is another year class around preferred length (Figure 3). Those fish may be the Bluegill stocked in 2008 just after the drought of the early to mid-2000s, in which Tennyson entirely dried up

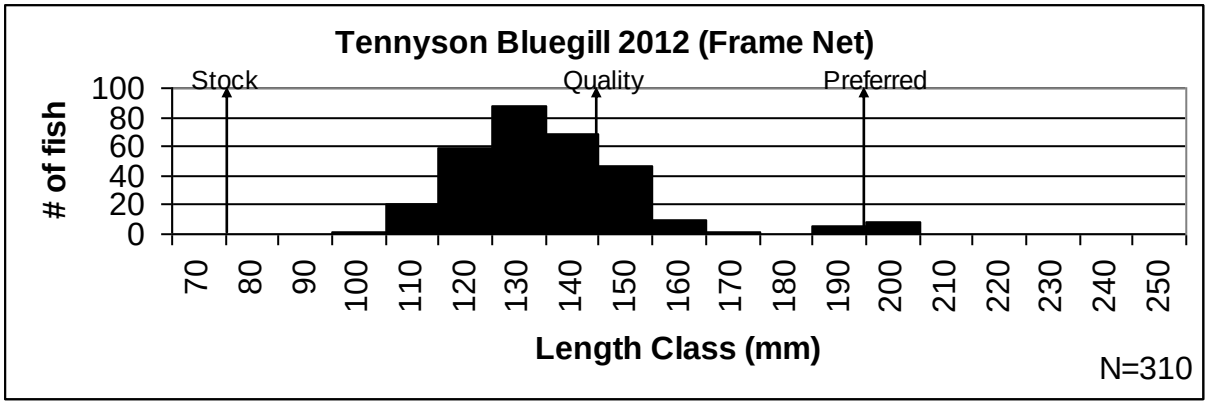

Figure 3. Length frequency histogram of Bluegill surveyed during the modified fyke (frame) net survey in Tennyson Dam, Pennington County, South Dakota, June 29-30, 2012.

Largemouth Bass

The Largemouth Bass collected from the experimental gill net ranged from 136-328 mm (5.4-12.9 in), and ranged from age-1 to age-4, which likely is a result of fingerling stockings in 2008 and 2009 (Appendix A). Additionally, these Largemouth Bass were in good condition with a mean *Wr* ≥ S of 111.3 (Table 1). The one largemouth bass collected in the trap nets was 327 mm (12.9 in) and had a *Wr* ≥ S of 104.6 (Table 1). A small sample of largemouth bass was obtained through angling. The number caught was likely biased by shore fishing conditions (e.g. heavy submergent vegetation around the shoreline). Only four fish were collected and the ranged from 182-276 mm (7.2-10.9 in). However, one larger fish was caught, but the length data was lost. This Largemouth Bass weighed 551 g (1.2 lbs).

Other Species

Yellow Perch (N=9) were the third most abundant fish species surveyed in frame nets (Table 1). Mean CPUE for Yellow Perch was 2.3 and the mean *Wr* ≥ S was 75.9 (Table 1). One Yellow Perch was collected from the experimental gill net with a *Wr* ≥ S of 69.7 (Table 1). A single Northern Pike was collected from the experimental gill net. The Northern Pike was 605 mm (24 in) in length, weighed 1400 g (3 lbs) and had a *Wr* ≥ S of 93.5 (Table 1).

RECOMMENDATIONS

1. Continue to evaluate the success of stocking efforts.

2. Survey panfish every five years or as needed to answer management questions.

APPENDIX

Appendix A. Stocking record, including year, species, size and number stocked (# stocked), for Tennyson Dam, Pennington County, South Dakota, 2005-2012.

Year	Species	Size	# Stocked
2005	Largemouth Bass	fingerling	2040
2006	Yellow Perch	adult	131
2008	Fathead Minnow	large	3000
2008	Bluegill	fingerling	6000
2008	Largemouth Bass	fingerling	6000
2009	Largemouth Bass	fingerling	5600
2011	Northern Pike	fry	56000
2012	Yellow Perch	adult	275
2012	Largemouth Bass	fingerling	8100